

**REMARKS**

Claims 1-14 are pending. Claims 8-14 are new. The applicant respectfully requests reconsideration and allowance of this application in view of the above amendments and the following remarks.

The specification has been amended by the attached substitute specification. The location of the drawing descriptions has been changed in accordance with standard US practice. Also, the character "□" has been replaced with a Greek delta to correct a printing error. Further, the abstract has been amended to reduce the number of words to meet US requirements. No new matter has been added.

Claims 1, 2, 4, and 7 were rejected under 35 USC 102(b) as being anticipated by US 4606313 to Izumi *et al.* (hereafter, Izumi). The applicant respectfully requests that this rejection be withdrawn for the following reasons.

Claim 1 requires, among other things, control means for reducing the absorption torque of the variable displacement hydraulic pump when the detected engine speed is decreased to a predetermined threshold value or lower. This feature is not disclosed or suggested by Izumi.

The load control device of claim 1 implements a control for reducing the absorption torque when the detected engine speed is decreased to a predetermined threshold value (for example,  $N_c$  in Fig. 4A) or lower. On the other hand, Izumi implements a control to reduce the absorption torque when the deviation (engine speed deviation) between the detected engine

speed and the target engine speed exceeds the threshold value. Thus, the device of Izumi is significantly different.

Additionally, the load control device of claim 1 is for an engine of a work vehicle (for example, a wheel loader) that activates a work machine. Further, in the load control device of claim 1, the engine is connected to the driving wheel through a torque converter. Izumi fails to disclose such a structure.

Izumi always implements a control to reduce the absorption torque whenever the engine speed deviation  $\Delta N$  reaches a certain value, regardless of whether the engine speed is high or low. In extreme cases, one might say that Izumi always implements a control to reduce the absorption torque. This results in frequent control operations to reduce the absorption torque during the work operation and frequent reductions in the oil pressure; as a result, the efficiency is lowered.

On the other hand, in the load control device of claim 1, the control for reducing the absorption torque is performed only when the engine speed is decreased to a predetermined threshold value, that is, when the engine speed is decreased to a specific engine speed. In a work vehicle such as wheel loader in which a single engine is used as the driving source for the driving wheels and the work machine, the engine has characteristics such that the engine torque increases more slowly in response to a rapid increase of the hydraulic load when the engine speed is in a low speed range or at a low idling speed than when in a high speed range or at a high idling speed. See paragraphs 0007 and 0008 of the substitute specification. Thus, engine stalling is more likely to occur during low idling speed. This is a problem specific to work vehicles such as wheel loaders. According to claim 1, the reduction of the absorption torque is implemented only at the time of this specific situation (for example, low idling speed). As

described above, unlike Izumi, the load control device of claim 1 does not frequently reduce the absorption torque and thus avoids a reduction in work efficiency.

Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Izumi and US 6176083 to Ikari. Claim 3 depends on claim 1 and is thus considered to be patentable for at least the reasons given above. Further, Ikari fails to supply what is missing in Izumi.

Claim 5 was rejected under 35 USC 103(a) as being unpatentable over Izumi and US 6170262 to Yoshimura *et al.* (hereafter, Yoshimura). Claim 5 depends on claim 1 and is thus considered to be patentable for at least the reasons given above. Further, Yoshimura fails to supply what is missing in Izumi.

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over Izumi and US 4773369 to Kobayashi *et al.* (hereafter, Kobayashi). Claim 6 depends on claim 1 and is thus considered to be patentable for at least the reasons given above. Further, Kobayashi fails to supply what is missing in Izumi.

Claims 8-14 are new. Independent claim 8 requires, among other things, a controller for reducing the absorption torque of the variable displacement hydraulic pump by controlling the valve apparatus when the detected engine speed is decreased to a predetermined threshold value or lower. This feature is not disclosed or suggested by any of the references of record. Therefore, claim 8 is considered to be patentable.

Claims 9-14 depend on claim 8 and are thus considered to be patentable for at least the reasons given above.

In view of the foregoing, the applicant submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions arise, the examiner is invited to contact the undersigned by telephone.

If there are any problems with the payment of fees, please charge any underpayments and credit any overpayments to Deposit Account No. 50-1147.

Respectfully submitted,

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